IV. Remarks.

The Examiner entered the following rejections in the office action.

1. Claims 1-5 and 13-15 are rejected under 35 USC 102(b) as being anticipated by Killinger (US patent 5,010,319).

As to claim 1, Applicant respectfully disagrees with the Examiner. Not all of the claim limitations are present in the reference, arranged as in the claim, namely, an automotive signal lens system comprising a layer embedded in a vehicle structural component.

Killinger teaches a warning light device (200) which is attached in a vertical position near the rear of a carrying vehicle. It is not a structural part of the vehicle or vehicle lighting system. Instead, it is an "autonomous, mobile unit" mounted to a carrying vehicle, col. 1, lines 48-50; col. 2, lines 1-2. Unit (200) is attached or attachable to a vehicle roof using a pivot shaft, col. 5, lines 1-10 and lines 11-14. There is no teaching present in Killinger regarding a layer embedded in a vehicle structural component, such as a vehicle fender or bumper, see application page 4, lines 26-29.

The Killinger unit does not convey information relating to the operational status of the vehicle on which the display device is mounted. Instead, unit (200) provides a mobile means mounted to a vehicle and is only used to regulate traffic, col. 1, lines 5-12, that is, providing information to regulate other vehicles instead of providing operational information about the vehicle on which the unit (200) is mounted, col. 1, line 62 to col. 2, line 11.

The inventive automotive signal lens system is claimed as an integral part of a vehicle. The lens system is used to identify the form or extremities of a vehicle during evening hours for example, as well as to display the operational condition of the vehicle, for example, when a turn signal is activated or when the brakes are applied. Reference in this regard is made to 49 CFR §571.108 of the Federal Motor Vehicle Safety Standards which describes required motor vehicle lighting equipment. The required lighting equipment includes stoplamps, taillamps, turn signal lamps, side marker lamps, and backup lamps, 47 CFR §571.108, Table III, each having a lens or light emitting surface. See also a) 47 CFR §571.108, S5.1.1.26(a), (b), each referring to "lighted lens area"; and b) 47 CFR §571.108, S5.1.2 describing plastic materials for lenses. All of these relate to vehicle lighting for "enhancing the conspicuity of motor vehicles on the public roads so that their presence is perceived and their signals understood" 47 CFR §571.108, S2. The referenced sections are attached.

Claims 2-5 each depend directly or ultimately from claim 1.

As to amended claim 13, Killinger does not teach a light emitting surface integral to a vehicle surface, the vehicle surface transparent to a light transmitted from the light emitting surface, and the light emitting surface is not substantially visually distinguishable from the vehicle surface when the light source is not illuminated. Killinger does not teach a vehicle surface transparent to a light

transmitted from the light emitting surface. Killinger only teaches matrix (12) with no disclosure concerning a transparent member covering matrix (12) or segment (206). Further, Killinger does not teach a light emitting surface being substantially visually indistinguishable from the adjacent vehicle surface when the light source is not illuminated. This feature allows the claimed invention to inconspicuously blend into a vehicle body.

As to claims 14 and 15, each directly or ultimately depends from amended claim 13.

2. Claims 6-7, 9-12, 16-19 are rejected under 35 USC 103(a) as being unpatentable over Killinger (US patent 5,101,319).

There is no incentive to modify the Killinger system as suggested by the Examiner with respect to the diameters and relationship of the adjacent fibers, or with respect to the integration of the planar member into a vehicle bumper. Doing so would make Killinger unsuitable for its intended purpose, namely, providing traffic control information from atop a vehicle.

As to claims 6, 7, 16 and 17, Killinger does not teach a vehicle signal lens integral to a vehicle bumper as argued previously.

Regarding the diameter and relationship of the adjacent fibers, the Killinger optical fiber bundles (50, 51) must comprise a fixed number of fibers (29, 30), although this number is not taught by Killinger. The patent figures show that the number of fibers (29, 30) in each bundle must be such that the bundle diameter is equal to or less than the diameter of the concave mirrors (54, 55). Killinger does not teach the diameter of the concave mirrors. Killinger only teaches a halogen lamp (40-43), col. 3, line 35, disposed within each concave mirror, see Fig. 3. For the purposes of argument, to one skilled in the art this may imply a diameter on the order of perhaps 8-10 centimeters based on the diameter of known halogen lamps (~2 cm; see http://www.gilway.com/shortcat/Halog_LH.html.). See also the depiction of light source (90) in concave mirror (81) as shown in Fig. 7. Halogen lamp (40-43, 90) appears to resemble a Gilway halogen lamp part number L7387 and L7418 shown on the noted web pages. However, none of this diameter information is taught in Killinger. Assuming for the purposes of this argument that the diameter of the halogen lamp (90) is approximately 2 cm, this corresponds to a frontal area of approximately 3.14 cm^2. Entry faces (74, 75) appear to have a diameter of approximately 3X the diameter of the halogen lamp, see Fig. 7. This would suggest that each entry face for the fiber bundle has an area of approximately 28 cm^2.

To continue, Killinger only teaches that each fiber present at the end (57) of each bundle in also present at the matrix (12). No fibers are present at pixels (27, 28) which are not present at end (57), col. 3, lines 30-43. Hence, all of the fibers present at end (57) must be dispersed across matrix

(12), but, at a far greater spacing than the side-by-side arrangement at end (57). In the case of a single light source (col. 4, lines 57-60), each bundle must be significantly expanded so that the display matrix (12) can display traffic signals in a manner visible to persons in following traffic, col. 1, lines 39-44. Although the end of each fiber at the matrix (12) conically diverges by means of a spreader sleeve to a diameter of approximately 4 mm, col. 4, lines 28-34, Killinger does not teach the specific relationship at the matrix (12) of fibers that originate from the same light source. As noted previously, illumination of all fibers by a single light source, col. 4, lines 57-60, requires that each fiber present at the light source be present at the matrix as well. Assuming for the sake of argument that the matrix (12) has an area of one square meter for purposes of visibility, this corresponds to an area of 10,000 cm^2. Compare this area to an entry frame area of approximately 28 cm^2. One can see that the spacing of the fibers across the matrix would be significant since the fiber bundle would have to be expanded to cover the entire matrix area. Therefore, the relationship claimed in the instant invention, namely $d_2<d_1$ for pixels originating from the same light source is not taught or reasonably suggested by Killinger.

As to claim 9, Applicant respectfully disagrees with the Examiner's characterization of the claim. Amended claim 9 includes the following limitation;

> "the light emitting surface having a visual appearance substantially the same as an adjacent vehicle member surface in which the light emitting surface is embedded so as to be indistinguishable from the adjacent vehicle member surface when the light source is off".

Killinger does not teach this limitation. Even when not illuminated unit (200) is prominently disposed on top of a carrying vehicle, see Fig. 10. Killinger does not teach or reasonably suggest that any surface on unit (200) is indistinguishable from the adjacent vehicle member surface when the light source is off. Although Fig. 10 appears to depict chevron markings on the vehicle rear (203) and unit (200, even in this configuration unit (200) is hardly indistinguishable from vehicle rear (203). There is no incentive to modify Killinger because Killinger teaches away from this limitation in favor of visual conspicuity. Unit (200) must be visually conspicuous to perform its intended purpose. Hence, the limitation is not present in Killinger.

The Examiner did not provide a photo of the cited Toyota Celica headlight. Applicant accessed Toyota's website at http://www.toyota.com/vehicles/2004/celica/exterior.html for a photo of a 2004 Celica GT-S. Applicant disagrees with the Examiner's characterization of the Celica headlight as depicted on the Toyota website. It is particularly conspicuous on the front of the vehicle. The headlight system must be visually distinguishable from the remainder of the vehicle whether operating or not. The highly silvered reflector is visible to the eye when the light is not illuminated or it would

otherwise b rendered partially or totally inoperable. Further, the structure of the headlight assembly is visible as well, including but not limited to the reflector, lamp and transparent lens.

Claim 6 depends from claim 1. Claims 10-12 depend from claim 9. Claim 18 depends from claim 17. Claim 19 depends from claim 13.

Applicant respectfully requests withdrawal of the rejection as to all claims.

V. Fees.

Any fees payable for this amendment and the request for extension of time can be deducted from deposit account 07-0475 in the name of The Gates Corporation.

Thank you for your attention to this case. If any questions arise, please call at the number below.

Sincerely,

Date: July 9, 2004

Jeffrey Thurnau
Attorney for Applicant
Reg. No. 42,183
303-744-4743

26683
26683
PATENT TRADEMARK OFFICE

n Width	Height above road surface measured from center of item on vehicle at curb weight
	Not less than 22 inches (55.9 cm) nor more than 54 inches (137.2 cm).
	Not less than 15 inches, nor more than 72 inches.
	Do.
	No requirement.
	Do.
	Not less than 15 inches, nor more than 83 inches.
	No requirement.
	Do.
	Not less than 15 inches.
	Not less than 15 inches nor more than 60 inches.
	See S5.7
	Do.
	Not less than 15 inches, and on the rear of trailers not more than 60 inches.

TABLE III—REQUIRED MOTOR VEHICLE LIGHTING EQUIPMENT

[All Passenger Cars and Motorcycles, and Multipurpose Passenger Vehicles, Trucks, Buses and Trailers of Less Than 80 (2032) Inches (mm) Overall Width]

Item	Passenger cars, multipurpose passenger vehicles, trucks, and buses	Trailers	Motorcycles	Applicable SAE standard or recommended practice (See S5 for subreferenced SAE materials)
Headlamps	See S7	None	See S7.9	J586 January 1960.
Taillamps	2 red	2 red	1 red	J585c, September 1977.
Stoplamps	2 red	2 red	1 red	SAE J586, February 1984.
High-mounted stoplamp.	1 red	Not required	Not required	J186a, September 1977.
License plate lamp.	1 white	1 white	1 white	J587, October 1981.
Parking lamps	2 amber or white	None	None	J222, December 1970.
Reflex reflectors	4 red; 2 amber	4 red; 2 amber	3 red; 2 amber	J594f, January 1977.
Intermediate side reflex reflectors.	2 amber	2 amber	None	J594f, January 1977.
Intermediate side marker lamps.	2 amber	2 amber	None	J592e, July 1972.
Side marker lamps.	2 red; 2 amber	2 red; 2 amber	None	J592e, July 1972.
Backup lamp	1 white	None	None	J593c, February 1988.
Turn signal lamps	2 red or amber; 2 amber	2 red or amber	2 amber; 2 red or amber.	SAE J588, November 1984.
Turn signal operating unit.[3,4]	1	None	1	J589, April 1964.
Turn signal flasher	1	None	1	J590b, October 1965.
Vehicular hazard warning signal operating unit.	1	None	None	J910, January 1966.
Vehicular hazard warning signal flasher.	1	None	None	J945, February 1966.

TABLE IV—LOCATION OF REQUIRED EQUIPMENT

[All Passenger Cars and Motorcycles, and Multipurpose Passenger Vehicles, Trucks, Trailers, and Buses of Less than 80 (2032) Inches (MM) Overall Width]

Item	Location on—		Height above road surface measured from center of item on vehicle at curb weight
	Passenger cars, multipurpose passenger vehicles, trucks, trailers, and buses	Motorcycles	
Headlamps	On the front, each headlamp providing the lower beam, at the same height, 1 on each side of the vertical centerline, each headlamp providing the upper beam, at the same height, 1 on each side of the vertical centerline, as far apart as practicable. See also S7.	See S7.9	Not less than 22 inches (55.9 cm) nor more than 54 inches (137.2 cm).
Taillamps	On the rear—1 on each side of the vertical centerline, at the same height, and as far apart as practicable.	On the rear—on the vertical centerline except that if two are used, they shall be symmetrically disposed about the vertical centerline.	Not less than 15 inches, nor more than 72 inches.
Stoplamps	On the rear—1 on each side of the vertical centerline, at the same height, and as far apart as practicable.	On the rear—on the vertical centerline except that if two are used, they shall be symmetrically disposed about the vertical centerline.	Not less than 15 inches, nor more than 72 inches.
High-mounted stoplamp.	On the rear, on the vertical centerline [See S5.1.1.27, S5.3.1.8, and Table III], effective September 1, 1985, for passenger cars only.	Not required	See S5.3.1.8 for passenger cars. Not less than 34 inches for multipurpose passenger vehicles, trucks, and buses.

S5.1.1.16 A trailer that is less than 6 feet in overall length, including the trailer tongue, need not be equipped with front side marker lamps and front side reflex reflectors.

S5.1.1.16 A lamp designed to use a type of bulb that has not been assigned a mean spherical candlepower rating by its manufacturer and is not listed in SAE Standard J573d, *Lamp Bulbs and Sealed Units*, December 1968, shall meet the applicable requirements of this standard when used with any bulb of the type specified by the lamp manufacturer, operated at the bulb's design voltage. A lamp that contains a sealed-in bulb shall meet these requirements with the bulb operated at the bulb's design voltage.

S5.1.1.17 Except for a lamp having a sealed-in bulb, a lamp shall meet the applicable requirements of this standard when tested with a bulb whose filament is positioned within ±.010 inch of the nominal design position specified in SAE Standard J573d, *Lamp Bulbs and Sealed Units*, December 1968, or specified by the bulb manufacturer.

S5.1.1.18 A backup lamp is not required to meet the minimum photometric values at each test point specified in Table I of SAE Standard J593c, *Backup Lamps*, February 1968, if the sum of the candlepower measured at the test points within each group listed in Figure 2 is not less than the group totals specified in that figure.

S5.1.1.19 Each variable load turn signal flasher shall comply with voltage drop and durability requirements of SAE Standard J590b, *Turn Signal Flashers*, October 1965 with the maximum design load connected, and shall comply with starting time, flash rate, and percent current "on" time requirements of J590b both with the minimum and with the maximum design load connected.

S5.1.1.20 The lowest voltage drop for turn signal flashers and hazard warning signal flashers measured between the input and load terminals shall not exceed 0.8 volt.

S5.1.1.21 A motor-driven cycle whose speed attainable in 1 mile is 30 mph or less need not be equipped with turn signal lamps.

S5.1.1.22 A motor-driven cycle whose speed attainable in 1 mile is 30 mph or less may be equipped with a stop lamp whose effective projected luminous lens area is not less than 3½ square inches and whose photometric output for the groups of test points specified in Figure 1 is at least one-half of the minimum values set forth in that figure.

S5.1.1.23-24 [Reserved]

S5.1.1.25 Each turn signal lamp on a motorcycle manufactured on and after January 1, 1973, shall have an effective projected luminous area of not less than 3½ square inches.

S5.1.1.26 On a motor vehicle whose overall width is less than 80 inches:

(a) The functional lighted lens area of a single compartment stop lamp, and a single compartment rear turn signal lamp, shall be not less than 50 square centimeters.

(b) If a multiple compartment lamp or multiple lamps are used to meet the photometric requirements for stop lamps and rear turn signal lamps, the functional lighted lens area of each compartment or lamp shall be at least 22 sqtare centimeters, provided the combined area is at least 50 square centimeters.

S5.1.1.27 (a) Except as provided in paragraph (b) of this section, each passenger car manufactured on or after September 1, 1985, and each multipurpose passenger vehicle, truck, and bus, whose overall width is less than 80 inches, whose GVWR is 10,000 pounds or less, manufactured on or after September 1, 1993, shall be equipped with a high-mounted stop lamp which:

(1) Shall have an effective projected luminous area not less than 4½ square inches.

(2) Shall have a signal visible to the rear through a horizontal angle from 45 degrees to the left to 45 degrees to the right of the longitudinal axis of the vehicle.

(3) Shall have the minimum photometric values in the amount and location listed in Figure 10.

(4) Need not meet the requirements of paragraphs 3.1.6 Moisture Test, 3.1.7 Dust Test, and 3.1.8 Corrosion Test of SAE Recommended Practice J186a, Supplemental High-Mounted Stop and Rear Turn Signal Lamps, September 1977, if it is mounted inside the vehicle.

(5) Shall provide access for convenient replacement of the bulb without the use of special tools.

(b) Each multipurpose passenger vehicle, truck and bus whose overall width is less than 80 inches, whose GVWR is 10,000 pounds or less, whose vertical centerline, when the vehicle is viewed from the rear, is not located on a fixed body panel but separates one or two movable body sections, such as doors, which lacks sufficient space to install a single high-mounted stop lamp on the centerline above such body sections, and which is manufactured on or after September 1, 1993, shall have two high-mounted stop lamps which:

(1) Are identical in size and shape and have an effective projected luminous area not less than 2¼ inches each.

(2) Together have a signal to the rear visible as specified in paragraph (a)(2) of this S5.1.1.27.

(3) Together have the minimum photometric values specified in paragraph (a)(3) of this S5.1.1.27.

(4) Shall provide access for convenient replacement of the bulbs without special tools.

S5.1.1.28 A multipurpose passenger vehicle, truck, or bus, whose overall width is less than 80 inches, and whose GVWR is 10,000 pounds or less, that is manufactured between September 1, 1992 and September 1, 1993, may be equipped with a high-mounted stop lamp or, in the case of vehicles subject to S5.1.1.27(b), two high-mounted stop lamps, that conform to S5.1.1.27 and S5.3.1.8.

S5.1.1.29 A trailer equipped with a conspicuity treatment in conformance with paragraph S5.7 of this standard need not be equipped with the reflex reflectors required by Table I of this standard if the conspicuity material is placed at the locations of the reflex reflectors required by Table I.

S5.1.2 Plastic materials used for optical parts such as lenses and reflectors shall conform to SAE Recommended Practice J576 JUL91, except that:

(a) Plastic lenses (other than those incorporating reflex reflectors) used for inner lenses or those covered by another material and not exposed directly to sunlight shall meet the requirements of paragraphs 3.3 and 4.2 of SAE J576 JUL91 when covered by the outer lens or other material;

(b) After the outdoor exposure test the haze and loss of surface luster of plastic materials (other than those incorporating reflex reflectors) used for outer lenses shall not be greater than 30 percent haze as measured by ASTM D 1003–92, *Haze and Luminous Transmittance of Transparent Plastic;*

(c) After the outdoor exposure test, plastic materials used for reflex reflectors and for lenses used in front of reflex reflectors shall not show surface deterioration, crazing, dimensional changes, color bleeding, delamination, loss of surface luster, or haze that exceeds 7 percent as measured under ASTM D 1003-92.

(d) The thickness of the test specimens specified in paragraph 3.2.2 of SAE J576 JUL91 may vary by as much as ±0.25 mm.

(e) After exposure to the heat test as specified in subparagraph (f) of this paragraph, and after cooling to room ambient temperature, a test specimen shall show no change in shape and general appearance discernable to the naked eye when compared with an unexposed specimen. The trichromatic coefficients of the samples shall conform to the requirements of SAE J578c, *Color Specification for Electric Signal Lighting Devices*, February 1977.

(f) Two samples of each thickness of each plastic material are used in the heat test. Each sample is supported at the bottom, with at least 51 mm. of the sample above the support, in the vertical position in such a manner that, on each side, the minimum uninterrupted area of exposed surface is not less than 3225 sq. mm. The samples are placed for two hours in a circulating air oven at 79 ±3 degrees C.

(g) All outdoor exposure tests shall be 3 years in duration, whether the material is exposed or protected. Accelerated weathering procedures are not permitted.

S5.1.3 No additional lamp, reflective device or other motor vehicle equipment shall be installed that impairs the effectiveness of lighting equipment required by this standard.

5.1.4 Except for multifunction school activity buses, each school bus

TABLE VI—DIMENSIONS OF TEST SPECIMEN AND FEELER GAGE FOR DEFORMATION TEST

Hose inside diameter*		Specimen dimensions (see fig. 4)		Feeler gage dimensions	
In.	Mm.	Depth (inch)	Length (inch)	Width (inch)	Thickness (inch)
7/32	5	3/64	1	1/8	3/64
1/4	6	1/16	1	1/8	1/16
9/32	.....	1/16	1	1/8	1/16
11/32	8	3/64	1	3/16	3/64
3/8	10	3/32	1	3/16	3/32
7/16	.....	3/64	1	1/4	3/64
15/32	.....	3/64	1	1/4	3/64
1/2	12	1/8	1	1/4	1/8
5/8	16	3/32	1	1/4	3/32
3/4	.....	3/16	1	1/4	3/16
1	.....	1/4	1	1/8	1/4

*These sizes are listed to provide test values for brake hoses manufactured in these sizes. They do not represent conversions.

(b) Apply gradually increasing force to the test specimen to compress its inside diameter to that specified in Table VI (dimension D of figure 4) for the size of hose tested.

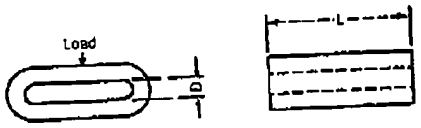

FIG. 4—DEFORMED SPECIMEN OF VACUUM BRAKE HOSE

(c) After 5 seconds release the force and record the peak load applied.

(d) Repeat the procedure four times permitting a 10-second recovery period between load applications.

S10.10 *End fitting corrosion resistance test.* Conduct the test specified in S6.9 using a vacuum brake hose assembly.

S11. *Test conditions.* Each hose assembly or appropriate part thereof shall be able to meet the requirements of S5., S7., and S9. under the following conditions.

S11.1 The temperature of the testing room is 75 °F.

S11.2 Except for S6.6, S8.2, and S10.2, the test samples are stabilized at test room temperature prior to testing.

S11.3 The brake hoses and brake hose assemblies are at least 24 hours old, and unused.

[38 FR 31303, Nov. 13, 1973]

EDITORIAL NOTE: For FEDERAL REGISTER citations affecting § 571.106, see the List of CFR Sections Affected, which appears in the Finding Aids section of the printed volume and on GPO Access.

§ 571.107 [Reserved]

§ 571.108 Standard No. 108; Lamps, reflective devices, and associated equipment.

S1. *Scope.* This standard specifies requirements for original and replacement lamps, reflective devices, and associated equipment.

S2. *Purpose.* The purpose of this standard is to reduce traffic accidents and deaths and injuries resulting from traffic accidents, by providing adequate illumination of the roadway, and by enhancing the conspicuity of motor vehicles on the public roads so that their presence is perceived and their signals understood, both in daylight and in darkness or other conditions of reduced visibility.

S3. *Application.* This standard applies to:

(a) Passenger cars, multipurpose passenger vehicles, trucks, buses, trailers (except pole trailers and trailer converter dollies), and motorcycles;

(b) Retroreflective sheeting and reflex reflectors manufactured to conform to S5.7 of this standard; and

(c) Lamps, reflective devices, and associated equipment for replacement of like equipment on vehicles to which this standard applies.

S4. *Definitions.*

Aiming Reference Plane means a plane which is perpendicular to the longitudinal axis of the vehicle and tangent to the forwardmost aiming pad on the headlamp.

Beam contributor means an indivisible optical assembly including a lens, reflector, and light source, that is part of an integral beam headlighting system and contributes only a portion of a headlamp beam.

Cargo lamp is a lamp that is mounted on a multipurpose passenger vehicle, truck, or bus for the purpose of providing illumination to load or unload cargo.

Cutoff means a generally horizontal, visual/optical aiming cue in the lower beam that marks a separation between areas of higher and lower luminance.

Direct reading indicator means a device that is mounted in its entirety on a headlamp or headlamp aiming or

Nat'l Highway Tr

headlamp mount
of a VHAD, and
about headlamp
digital format.

Effective projec
means that area
plane perpendicu
that portion of t
face that direct
metric test patt
clude mounting
flector area, bea
glow or produc
creased intensity
trolled light fro
radius around the

Filament means
source or light
such as a resistiv
portion of a spe
under pressure, o
ergy conversion s
radiant energy wi

Flash means a
deactivation of
means continuin
automatically or

Fully opened m
the headlamp c
which the headl
open operating p

Headlamp conce
device, with its
components, tha
ment of the headl
use, including
cover and a headl
concealment pur

Headlamp test f
designed to sup
headlamp assemb
specified in the
whose mounting
nents are those
the headlamp as
vehicle.

Integral beam
headlamp (other
sealed beam head
form to paragrap
bulb headlamp de
paragraph S7.5) c
and indivisible
cluding lens,
source, except t
forming to parag
graph S7.8.5.3 ma
to be replaceable.